

FIG. 1A-1	FIG. 1A-2
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FIG. 1A-2

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TGGACATTG GGGACACAC TGGCCIGTII GICICACAC ATCACACITT GATCACACG TATGIGCTCA ATGGARCCIT CAACITTAAC CTCACCGTGC AACITGACGT GCCGGGACCA 1080  
 U M F G D N T G L F U S N H M T L N H T Y U L M G T F M F N L T U Q T A U P G P  
 TGGCCCTCAC CCACACCTTC GCCITICTICT TCGACTICTC CTTCGCCCTG C ATCTCGCT TACACCCCAT TACACCCCAT TATACACCC TAGICCCCTCT TTAATGCCIA CTGGCTACAA ATCCATGGAG 1200  
 C P S P T P S P S S S T S P S P A S S P S P T L S T P S P S L M P T G Y K S N E  
 CTAGGTGACA TTTCRATGA AACITGCCGA ATACACCAT ATGGTTACTT CAGAGCCACC ATCACCAATG TACATGCAAT CCTAGAGTC AACATCATCC AGGTAGCAGA TGTCCTCAATC 1320  
 L S D I S N E H C R I M R Y G Y F A R A T I T I U D G I L E U M I I Q U A D U P I  
 CCCACACTGC AGCCTGACAA CTCACITGATG GACTTCATIG TACCTTGCAA AGGGGCCACT CCCACGGAG CCTGTACGAT CATCTCTGAC CCCACCTGCC AGATCGCCCA GACACGGGTG 1440  
 P T L Q P D N S L M D F I U T C K G R T P T E A C T I I S D P T C Q I A Q H R U  
 TCCAGCCCGG TGGCTGTGCA TACCTGTGCG CTTCAATGGG TCCGGCAGCT ACTGTGTGAA TTTCACCTCTG GGACACGATG CAGCCCTGCC CCTCACCCAGC 1560  
 C S P U A U D E L C L L S U R R A F N G S G T Y C U M F T L G D A S L A L T S  
 GGCCTGATCT CTATCCCTGG CAGACACCTA GGCCTCCCTC TGGACACCAT GATGGTGTG CTGATCTCCA TTGGCTGCCCT GGCCTGTTT GTACACATGG TACCATCTT GCTGTACAA 1680  
 A L I S I P G K D L G S P L A T U M G U L I S I G C L A M F U T M U T I L L Y K  
 AACACACAGA CGTACAGCC AATAGGAAC TGCACACAGA ACGTGTGTCAA GGCACACAGC CTAGGTGTT TTCTACCCA TGCACACGCC CCCCTCTCC GAGCAGACCG GGCACACGAT 1800  
 K H K T Y K P I G M C T R H U U K G K G L S U F L S H A K R P F S A G D R E K D  
 CCACTGCTCC AGCACACGCC ATCGATGCTC TAAgtcttca cttctcacttc tgaetggaa cccactcttc tglgcatgta tglgagctgt gcagaaaglac atgaetggta gctgttgttt 1920  
 P L L Q D K P M N L .  
 tctacggatt attgtaaaa gtatolcatg gtttoggag tglagltaat tggcatttta glgaaggat gggaaagacg tottcttcg catctgtatt ggggtttta tactgtaat 2040  
 ogggtggca callgtgtct gaaggggggg ggggggggtca ctgtactta oggtcctagg ttaactggga gaggatgcc caggtcctt agatttctac ocaogotgtg cctgaaccca 2160  
 gctagtcctg acctaaagg catgttcat caactctatc tcaetcatl gaacatocct gagcgccgga tggaaattata atggaaccaa gcttgttgta tgggtgtgtgt gtgtacataa 2280  
 gatactcatl aaaaagacag tctattaaaa aaaaaaaana 2320

FIG. 1A-2

EXON	BAC Start	BAC Stop	cDNA Start	cDNA Stop	Exon Length
1	83294	83455	1	162	162
2	89834	89986	163	314	152
3	90696	90839	315	458	144
4	93419	93594	459	634	176
5	96509	96665	635	791	157
6	96983	97300	792	1109	318
7	103044	103142	1110	1208	99
8	104413	104515	1209	1311	103
9	106494	106702	1312	1520	209
10	110048	110141	1521	1614	94
11	110592	111633	1615	2656	1042

poly A signal is position 111614-111619

translation start (ATG) is:

cDNA: 92

Gene: 83385

FIG. 1B

K-D

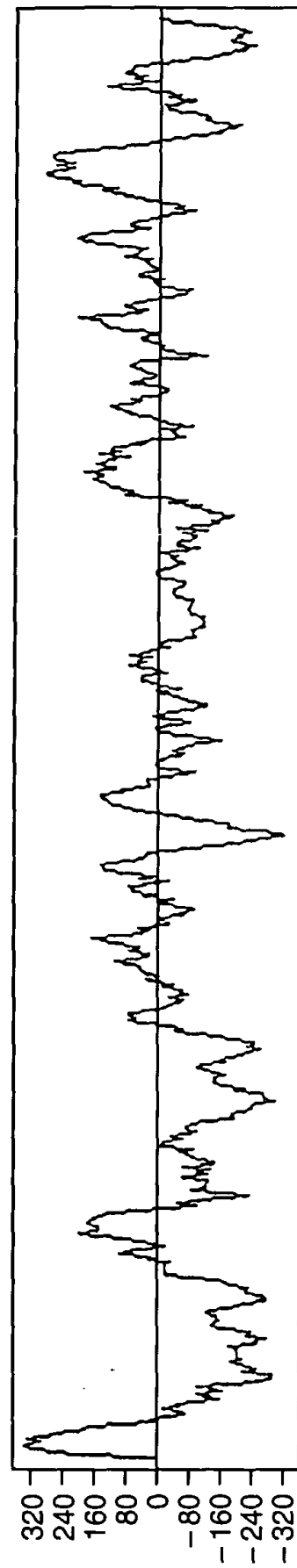


FIG. 1C

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FIG. 2A-1
FIG. 2A-2
FIG. 2A-3
FIG. 2A-4
FIG. 2A-5

FIG. 2A

rat	ATGGAAGTC	TCTGCGGGT	CCTGGTATTT	CTGCTGCTGG	CTGCAGGACT	GCCGCTCCAG	GCGGCCAAGC	GGTTC	75
mouse	ATGGAAGTC	TCTGCGGGT	CCTGGGATTT	CTGCTGCTGG	CTGCAGGACT	GCTCTCCAG	GCTGCCAAGC	GATTT	75
human	ATGGAAGTC	TCTACTATTT	CCTGGGATTT	CTGCTCCTGG	CTGCAAGATT	GCCACTTGAT	GCCCCAAC	GATTT	75
rat	CGTGATGTG	TGGGCCATGA	GCAGTATCCG	GATCACATGA	GGGAGAACAA	CCAATTACGT	GGCTGGTCTT	CAGAT	150
mouse	CGTGATGTG	TGGGCCATGA	ACAGTATCCC	GATCACATGA	GAGAGCACAA	CCAATTACGT	GGCTGGTCTT	CGGAT	150
human	CATGATGTG	TGGGCAATGA	AAGACCTTCT	GCTTACATGA	GGGAGCACAA	TCAATTAAAT	GGCTGGTCTT	CTGAT	150
rat	GAAATGAAT	GGATGAACA	GCTGTATCCA	GTGTGGAGGA	GGGAGAGGG	CAGATGGAAG	GACTCCTGGG	AAGGA	225
mouse	GAAATGAAT	GGATGAACA	CCTGTATCCA	GTGTGGAGGA	GGGAGACGG	CAGGTGGAAG	GACTCCTGGG	AAGGA	225
human	GAAATGACT	GGAATGAAA	ACTTACCCA	GTGTGGAAGC	GGGAGACAT	GAGGTGAAA	AACCTCTGGA	AGGGA	225
rat	GGCCGTGTG	AGCAGCCCT	AACCAGTGAT	TCACCGGCCT	TGGTGGGTC	CAATATCACC	TTCGTAGTGA	ACCTG	300
mouse	GGCCGTGTG	AGCAGTCCT	GACCAGTGAC	TCACCGGCTC	TGGTGGGTC	CAATATCACT	TTTGTGGTGA	ACCTG	300
human	GGCCGTGTG	AGCGGTCCT	GACCAGTGAC	TCACCAGCCC	TCGTGGGCTC	AAATATAACA	TTTGGGTGA	ACCTG	300

FIG. 2A-1

rat	GTGTTCCCCA	GATGCCAGAA	GGAAGATGCC	AACGGCAATA	TCGTCTATGA	GAGAACTGC	AGAACTGATT	TGGAG	375
mouse	GTGTTCCCCA	GATGCCAGAA	GGAAGATGCT	AATGGCAATA	TCGTCTATGA	GAAGAACTGC	AGGAATGATT	TGGGA	375
human	ATATTCCCTA	GATGCCAATA	GGAAGATGCC	AATGGCAACA	TAGTCTATGA	GAAGAACTGC	AGAAATGAGG	CTGGT	375
rat	CTGGCTTCTG	ACCCGTATGT	CTACAACTGG	ACCACAGGGG	CAGACGATGA	GGA CTGGGAA	GACAACACCA	GCCAA	450
mouse	CTGACATCTG	ACCTGCATGT	CTACAACTGG	ACTGCAGGGG	CAGATGATGG	TGACTGGGAA	GATGGCACCA	GCCGA	450
human	TTATCTGCTG	ATCCATATGT	TTACAACTGG	ACAGCATGGT	CAGAGGACAG	TGACGGGGAA	AATGGCACCG	GCCAA	450
rat	GGCAGCACC	TCAGGTTCCC	CGACGGGAAG	CCCTTCCCTC	GCCCCCACGG	ACGGAAGAAA	TGGA ACTTCG	TCTAC	525
mouse	AGCCAGCATC	TCAGGTTCCC	GGACAGGAGG	CCCTTCCCTC	GCCCCCATGG	ATGGAAGAAA	TGGAGCTTTG	TCTAC	525
human	AGCCATCATA	ACGTCTTCCC	TGATGGGAAA	CCTTTTCCTC	ACCACCCCGG	ATGGAGAAGA	TGGAATTTCA	TCTAC	525
rat	GTCTTCCACA	CAC TTGGTCA	GTATTTTCAA	AAGCTGGGTC	AGTGTTTCAGC	ACGAGTTTCT	ATAAACACAG	TCAAC	600
mouse	GTCTTTCACA	CAC TTGGCCA	GTATTTCCAA	AAACTGGGTC	GGTGTTTCAGC	ACGGGTTTCT	ATAAACACAG	TCAAC	600
human	GTCTTCCACA	CAC TTGGTCA	GTATTTCCAG	AAATTGGGAC	GATGTTTCAGT	GAGAGTTTCT	GTGAACACAG	CCAAT	600
rat	TTGACAGTTG	GCCCTCAGGT	CATGGAAGTG	ATTGTCTTTC	GAAGACACGG	CCGGGCATAC	ATTCCCATCT	CCAAA	675
mouse	TTGACAGCTG	GCCCTCAGGT	CATGGAAGTG	ACTGTCTTTC	GAAGATACGG	CCGGGCATAC	ATTCCCATCT	CGAAG	675
human	GTGACACTTG	GGCCTCAACT	CATGGAAGTG	ACTGTCTACA	GAAGACATGG	ACGGGCATAT	GTTC C C C A T C G	CACAA	675

FIG. 2A-2

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rat	GTGAAAGACG	TGTATGTGAT	AACAGATCAG	ATCCCTATAT	TCGTGACCAT	GTACCAGAAG	AATGACCGGA	ACTCG	750
mouse	GTGAAAGATG	TGTATGTGAT	AACAGATCAG	ATCCCTGTAT	TCGTGACCAT	GTCCCAGAAG	AATGACAGGA	ACTTG	750
human	GTGAAAGATG	TGTACGTGGT	AACAGATCAG	ATTCTGTGT	TTGTGACTAT	GTTCCAGAAG	AACGATCGAA	ATTCA	750
rat	TCTGATGAAA	CCTTCCTCAG	AGACCTCCCC	ATTTTCTTCG	ATGTCCTCAT	TCACGATCCC	AGTCATTTCC	TCAAC	825
mouse	TCTGATGAGA	TCTTCCTCAG	AGACCTCCCC	ATCGTCTTCG	ATGTCCTCAT	TCAATGATCCC	AGCCACTTCC	TCAAC	825
human	TCCGACGAAA	CCTTCCTCAA	AGATCTCCCC	ATTATGTTTG	ATGTCCTGAT	TCAATGATCCT	AGCCACTTCC	TCAAT	825
rat	TACTCTGCCA	TTTCCTACAA	GTGGAACCTT	GGGACAACA	CTGGCCTGTT	TGTCTCCAAC	AATCACACTT	TGAAT	900
mouse	GACTCTGCCA	TTTCCTACAA	GTGGAACCTT	GGGACAACA	CTGGCCTGTT	TGTCTCCAAC	AATCACACTT	TGAAT	900
human	TATTCTACCA	TTAACTACAA	GTGGAGCTTC	GGGATAATA	CTGGCCTGTT	TGTTTCCACC	AATCATACTG	TGAAT	900
rat	CACACGTATG	TGCTCAATGG	AACCTTCAAC	TTTAACCTCA	CCGTGCAAAC	TGCAGTGCCG	GG-----	-ACCA	966
mouse	CACACTTATG	TGCTCAATGG	AACCTTCAAC	CTTAACCTCA	CCGTGCAAAC	TGCAGTGCCG	GG-----	-GCCA	966
human	CACACGTATG	TGCTCAATGG	AACCTTCAGC	CTTAACCTCA	CTGTGAAAGC	TGCAGCACCA	GGACCTTGTC	CGCCA	975
rat	-TGCC-CC-T	CACCCACACC	TTGGCCTTCT	TCTTCGACTT	CTCCTTC---	---GCCTGCA	TCTTCGCCCTT	CA---	1029
mouse	-TGCC-C--T	--CCC--T	TTGGCCTTCG	ACTCCGCCTT	CACCTTCAAC	TCCGCCCTTA	CCTTCGCCCT	CACCT	1032
human	CCGCCACCAC	CACCCAGACC	TTC-----	-----AA-	-----A	-----	-----	-ACC-	1004

FIG. 2A-3

rat	---CCCACAT TATCAACACC TAGTCCCTCT TTAATGCCTA CTGGCTACAA ATCCATGGAG CTGAGTGACA TTTCC	1101
mouse	TTGCCACACAT TATCAACACC TAGCCCTCT TTAATGCCTA CTGGTTACAA ATCCATGGAG CTGAGTGACA TTTCC	1107
human	-----CACC ----CCTTCT TTAGGACCTG CTGGTGACAA CCCCCTGGAG CTGAGTAGGA TTCCT	1059
rat	AATGAAACT GCCGAATAAA CAGATAAGGT TACTTCAGAG CCACCATCAC AATTGTAGAT GGAATCCTAG AAGTC	1176
mouse	AATGAAACT GCCGAATAAA CAGATAAGGC TACTTCAGAG CCACCATCAC AATTGTAGAG GGGATCCTGG AAGTC	1182
human	GATGAAACT GCCAGATTAA CAGATAAGGC TACTTTCAAG CCACCATCAC AATTGTAGAG GGAATCTTAG AGGTT	1134
rat	AACATCATCC AGGTAGCAGA TGTCCCAATC CCCACACTGC AGCCTGACAA CTCACTGATG GACTTCATTG TGACC	1251
mouse	AGCATCATGC AGATAGCAGA TGTCCCCATG CCCACACCGC AGCCTGCCAA CTCCTGATG GACTTCACTG TGACC	1257
human	AACATCATCC AGATGACAGA CGTCCTGATG CCGGTGCCAT GGCCTGAAAG CTCCTTAATA GACTTTGTCTG TGACC	1209
rat	TGCAAAGGGG CCACTCCCAC GGAAGCCTGT ACGATCATCT CTGACCCCCAC CTGCCAGATC GCCCAGAACA GGGTG	1326
mouse	TGCAAAGGGG CCACCCCCAT GGAAGCCTGT ACGATCATCT CCGACCCCCAC CTGCCAGATC GCCCAGAACC GGGTC	1332
human	TGCCAAGGGA GCATTCCCAC GGAGGTCTGT ACCATCATTT CTGACCCCCAC CTGCCAGATC ACCCAGAACA CAGTC	1284
rat	TGCAGCCCGG TGGCTGTGGA TGAGCTGTGC CTCCTGTCCG TGAGGAGAGC CTTCAATGGG TCCGGCACGT ACTGT	1401
mouse	TGCAGCCCTG TGGCTGTGGA TGGGCTGTGC CTGCTGTCTG TGAGAAGAGC CTTCAATGGG TCTGGCACCT ACTGT	1407
human	TGCAGCCCTG TGGATGTGGA TGAGATGTGT CTGCTGACTG TGAGACGAAC CTTCAATGGG TCTGGGACGT ACTGT	1359

FIG. 2A-4



FIG. 2B-1
FIG. 2B-2

FIG. 2B

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rat	MESLCGVLVF	LLAAGLPLQ	AAKFRDVLG	HEQYPDHME	NNQLRGWSSD	50
mouse	MESLCGVLGF	LLAAGLPLQ	AAKFRDVLG	HEQYPDHME	HNQLRGWSSD	50
human	MECLYYFLGF	LLAARLPLD	AAKRFHDVLG	NERPSAYME	HNQLNGWSSD	50
rat	ENEWDEQLYP	VWRRGEGRWK	DSWEGGRVQA	ALTSDSPALV	GSNITFVVNL	100
mouse	ENEWDEHLYP	VWRRGDGRWK	DSWEGGRVQA	VLTSDSPALV	GSNITFVVNL	100
human	ENDWNEKLYP	VWKRCDMRWK	NSWKGGRVQA	VLTSDSPALV	GSNITFAVNL	100
rat	VFPRCQKEDA	NGNIVYERNK	RSDLELASDP	YVYNWTTGAD	DEDWEDNTSQ	150
mouse	VFPRCQKEDA	NGNIVYEKNC	RNDLGLTSDL	HVYNWTTAGAD	DGDWEDGTSR	150
human	IFPRCQKEDA	NGNIVYEKNC	RNEAGLSADP	YVYNWTTAWSE	DSDGENGTTGQ	150
rat	GQHLRFDPDGK	PFPRPHGRKK	WNFVYVFHTL	GQYFQKLGQC	SARVSINTVN	200
mouse	SQHLRFDPDR	PFPRPHGWKK	WSFVYVFHTL	GQYFQKLGRC	SARVSINTVN	200
human	SHHNVFPDGK	PFPHHPGWRR	WNFIYVFHTL	GQYFQKLGRC	SVRVSIVNTAN	200
rat	LTVGPQVMEV	IVFRRHGRAY	IPISKVKDVY	VITDQIPIFV	TMYSQKNDNRNS	250
mouse	LTAGPQVMEV	TVFRRYGRAY	IPISKVKDVY	VITDQIPVFV	TMSQKNDNRNL	250
human	VTLGPQLMEV	TVYRRHGRAY	VPIAQVKDVY	VVTDQIPVFV	TMFQKNDNRNS	250
rat	SDETFLRDLP	IFEDVLIHDP	SHFLNYS AIS	YKWNFGDNTG	LFVSNNHHTLN	300
mouse	SDEIFLRLDP	IVEDVLIHDP	SHFLNDS AIS	YKWNFGDNTG	LFVSNNHHTLN	300
human	SDETFLKDL	IMEDVLIHDP	SHFLNYSTIN	YKWNFGDNTG	LFVSTNHHTVN	300

FIG. 2B-1

rat	HTYVLNGTFN	FNLTVQTAVP	GPCPSPTPS-	-PSSSTSPSP	ASSPSPTLST	348
mouse	HTYVLNGTFN	LNLTVQTAVP	GPCPPPPSPST	PPSPSTPPLP	SPSPLPTLST	350
human	HTYVLNGTFS	LNLTVKAAAP	GPCPPPPPP--	-----PPRP	-----SK	334
rat	PSPSLMPTGY	KSMELSDISN	ENCRINRYGY	FRATITIVDG	ILEVNIIQVA	398
mouse	PSPSLMPTGY	KSMELSDISN	ENCRINRYGY	FRATITIVEG	ILEVSIMQIA	400
human	PTPSLGPAGD	NPLELSRIPD	ENCQINRYGH	FQATITIVEG	ILEVNIIQMT	384
rat	DVPIPTLQPD	NSLMDFIVTC	KGATPTEACT	IISDPTCQIA	QNRVCSPVAV	448
mouse	DVPMPTPQPA	NSLMDFTVTC	KGATPMEACT	IISDPTCQIA	QNRVCSPVAV	450
human	DVLMPPWPPE	SSLIDFVVTC	QGSIPTEVCT	IISDPTCEIT	QNTVCSPVDV	434
rat	DELCLLSVRR	AFNGSGTYCV	NFTLGDDASL	ALTSALISIP	GKDLGSPRLT	498
mouse	DGLCLLSVRR	AFNGSGTYCV	NFTLGDDASL	ALTSTLISIP	GKDPDSPLRA	500
human	DEMCLLTVRR	TFNGSGTYCV	NFTLGDDTSL	ALTSTLISVP	DRDPASPLRM	484
rat	VNGVLISIGC	LAMFVTMVTI	LLYKKHKHTYK	PIGNCTRNVV	KGKGLSVFLS	548
mouse	VNGVLISIGC	LAVLVTMVTI	LLYKKHKHAYK	PIGNCPRNTV	KGKGLSVLLS	550
human	ANSALISVGC	LAIFVTVISL	LVYKKHKEYN	PIENSPGNVV	RSKGLSVFLN	534
rat	HAKAPFSRGD	REKDP LLQDK	PW--ML	572		
mouse	HAKAPFFRGD	QEKDP LLQDK	PR--TL	574		
human	RAKAVFFPGN	QEKDP LLKNQ	EFKGVS	560		

FIG. 2B-2

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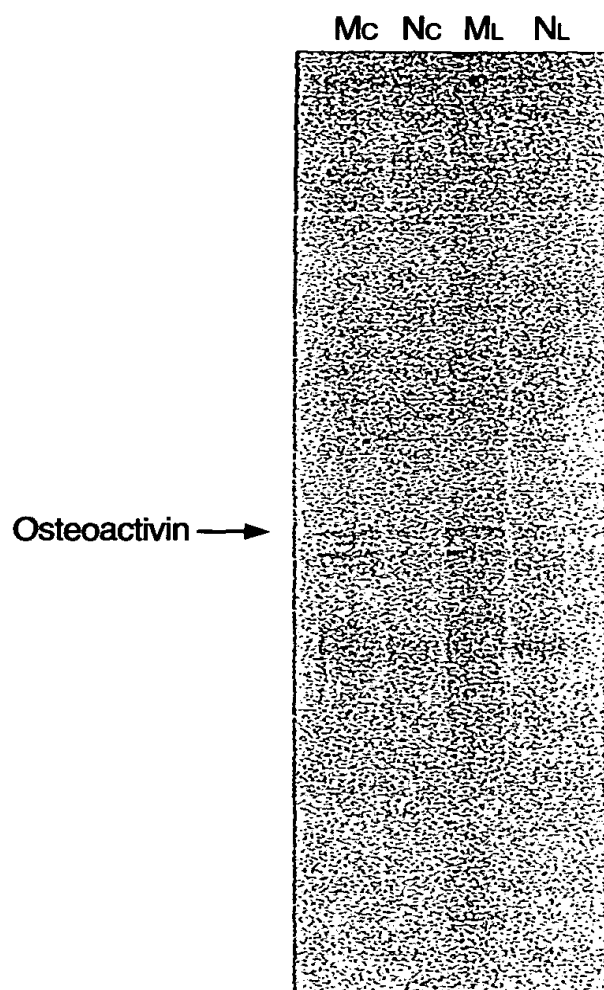


FIG. 3

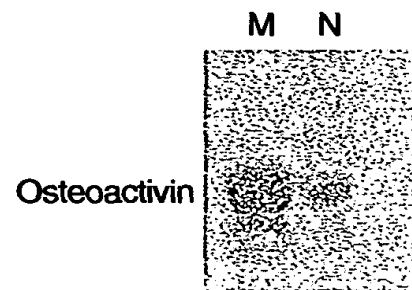


FIG. 4A

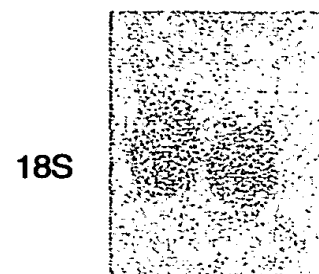


FIG. 4B

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FIG. 5



FIG. 5A

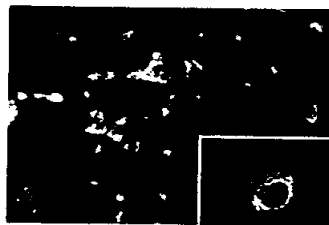


FIG. 5B



FIG. 5C

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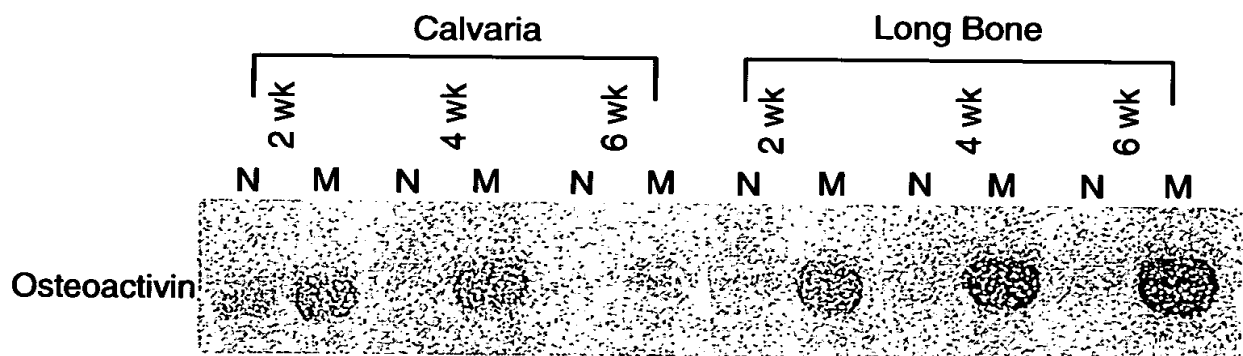


FIG. 6

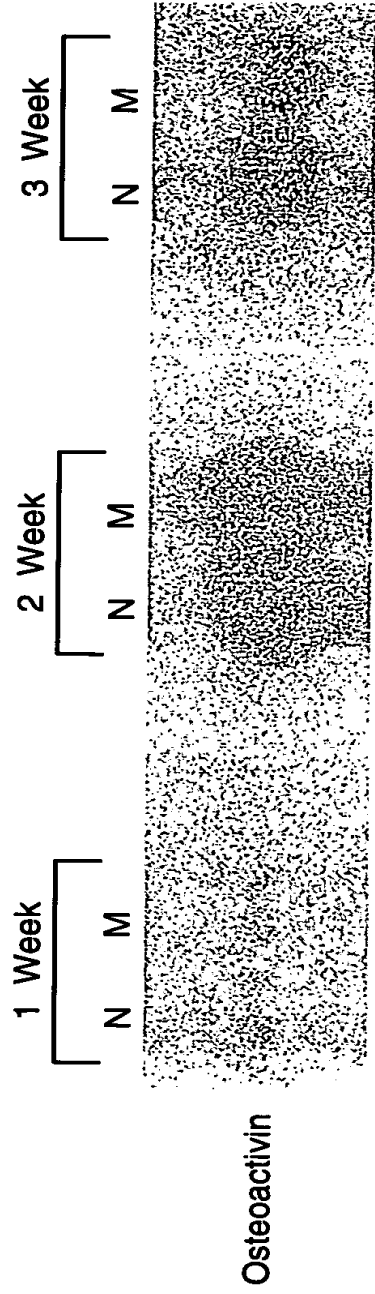


FIG. 7A

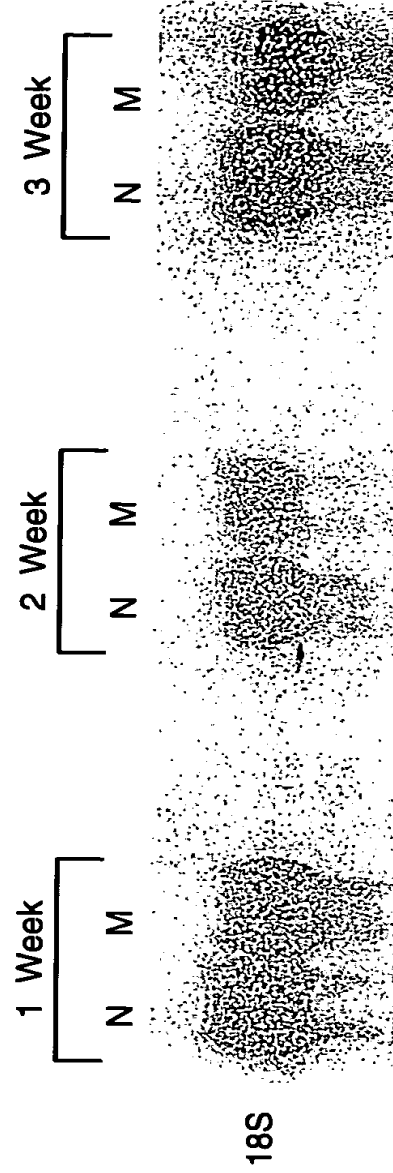


FIG. 7B

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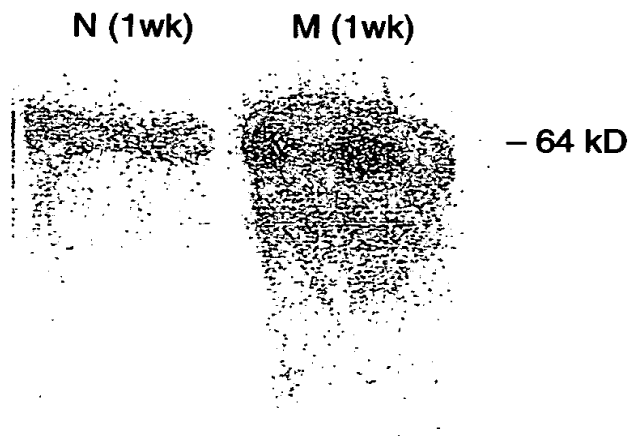


FIG. 8

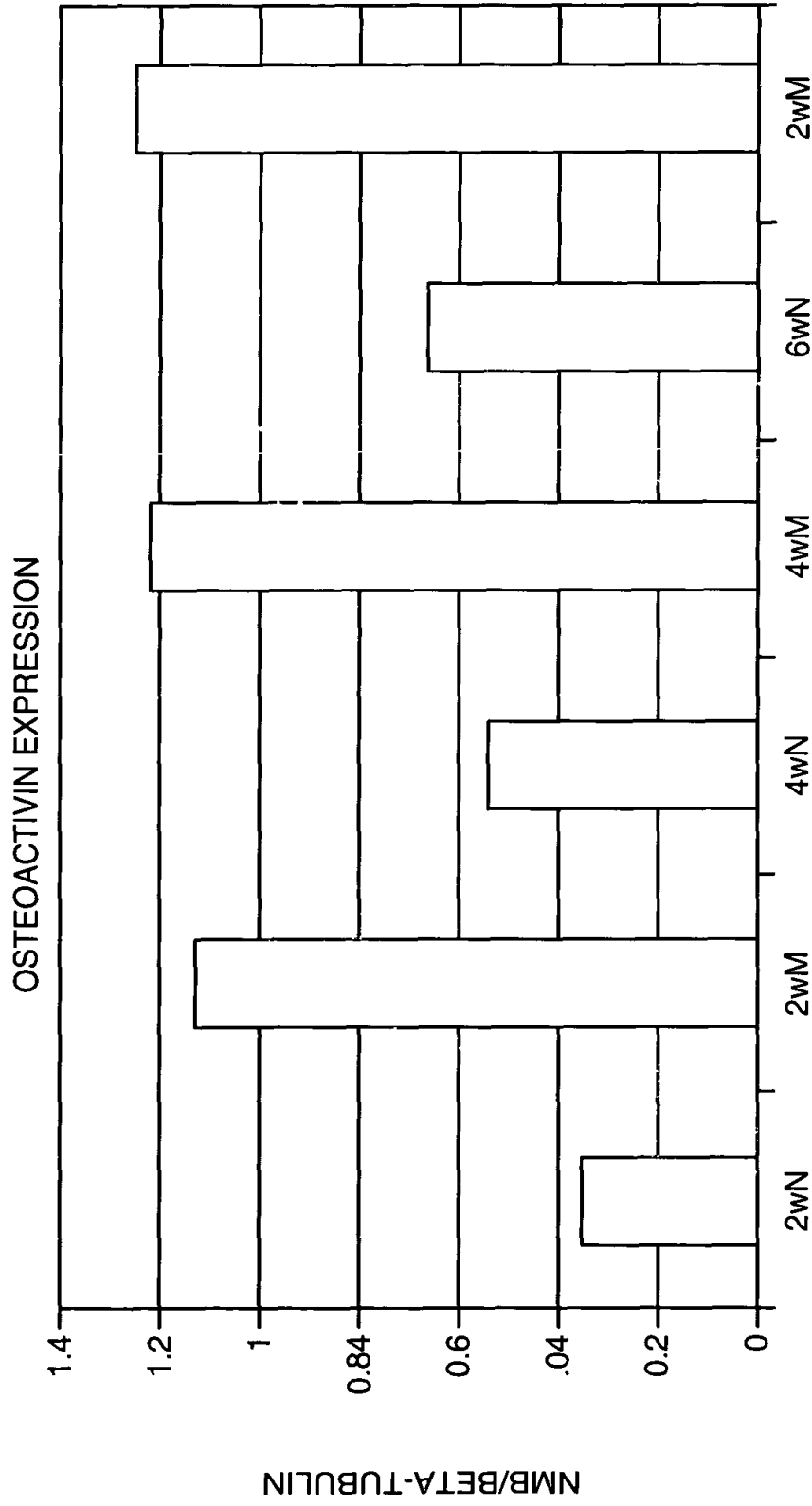


FIG. 9

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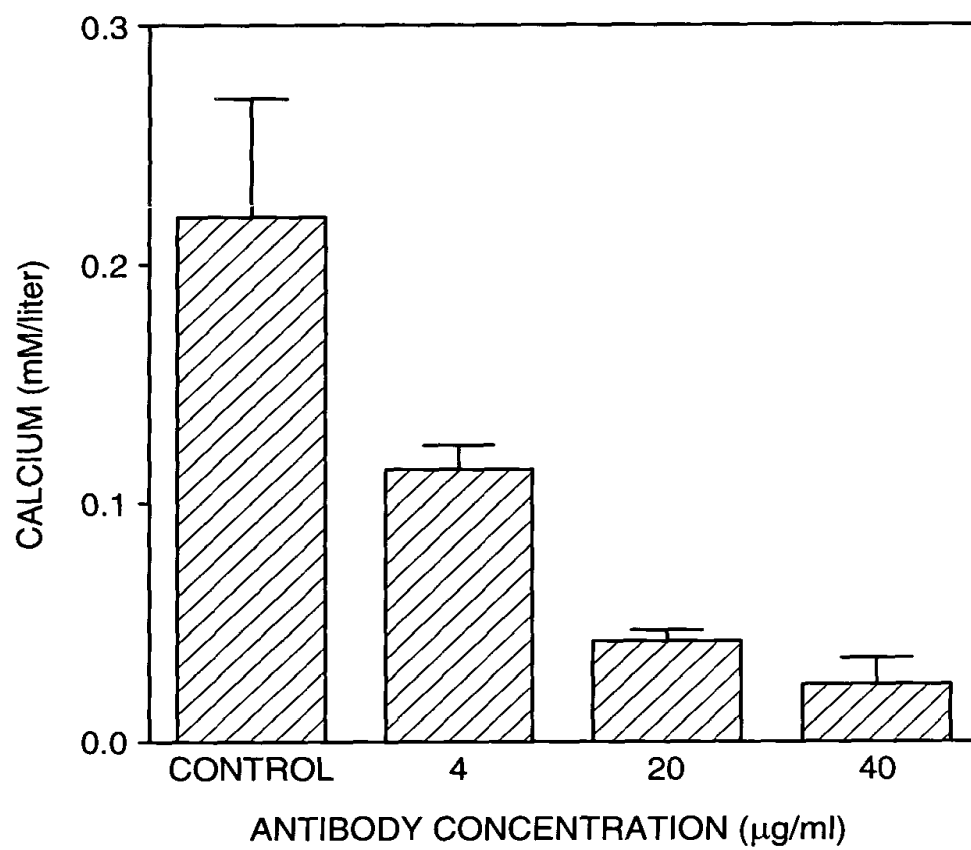


FIG. 10